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30686	7590	09/18/2006	EXAMINER	
SCHLUMBERGER K.K. 2-2-1 FUCHINOBE SAGAMIHARA-SHI, KANAOAWA-KEN, 229-0006 JAPAN			LUKS, JEREMY AUSTIN	
			ART UNIT	PAPER NUMBER
			2837	

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Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Claim Objections

1. Claim 38 is objected to because of the following informalities: There is no support in Applicant's application for "a fourth hollow cylinder (184) disposed between the *first* and *second* supporting rings". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 37-38 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arian (6,564,899). Arian teaches a sonic receiver sleeve (Figure 10) comprising a first hollow metallic cylinder (86), a first supporting ring (134) coaxial with and attached to the first hollow metallic cylinder (86); a second supporting ring (132) coaxial with and spaced axially from the first support ring (134); and a second hollow cylinder (136) disposed between the first (134) and second (132) supporting rings; a third hollow metallic cylinder (Figure 20, see portion of #86 below #200) opposite of the second hollow cylinder (186); a third supporting ring (see ring near #190, corresponding to #124 in Figure 10) coaxial with and attached to the third hollow metallic cylinder (86); a fourth supporting ring (see ring near #188, corresponding to #122 in Figure 10) coaxial with and spaced axially from the third support ring (190); and a fourth hollow

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cylinder (184) disposed between the supporting rings (rings near #190, 188); and wherein the first (86, above #200) and third (86, below #200) hollow metallic cylinders each comprise an acoustic impedance at higher than the second (186) and fourth (184) hollow cylinders (Col. 9, Lines 28-64). Arian fails to teach wherein the first and third hollow metallic cylinders each comprise an acoustic impedance between twice and at least ten times as high as the second and fourth hollow cylinders. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the first and third hollow metallic cylinders each with an acoustic impedance between twice and at least ten times as high as the second and fourth hollow cylinders, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working range involves only routine skill in the art. In re Aller, 105 USPQ 233. Arian fails to teach wherein the second and forth hollow cylinders comprise elastomer, resin, or both elastomer and resin. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a second and forth hollow cylinder comprising elastomer, resin, or both elastomer and resin, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. Further, Arian fails to teach a third hollow metallic cylinder attached to the second supporting ring. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to attach the third hollow metallic cylinder to the second supporting ring,

since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70

3. Claims 1-16, 21-35, 39 and 42-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arian (6,564,899) in view of Hoyle (5,036,945) and Meehan (6,535,458).

With respect to Claims 1-15, 21-34, 39 and 42-46, Arian teaches an acoustic logging tool (Figure 1, #10) comprising a central rigid mandrel (Figure 10, 86); a plurality of spaced mass blocks (164) comprising an inner diameter bearing against an outer diameter of the mandrel (86) in an interference fit; a plurality of acoustic elements (160, 162) attached to each of the plurality of spaced mass blocks (164); and a plurality of axially discontinuous, alternating circumferentially continuous first and second acoustic impedance zones (132, 134) (Col. 9, Lines 28-39); wherein each of the plurality of sonic elements (160, 162) is axially aligned with one of the second zones (132) (see plurality of modules in Figure 19); wherein each low acoustic impedance zone (134) is aligned axially with one or more of the acoustic elements (160, 162); wherein the first zone comprises a metal band and the second zone acoustically transparent comprises an elastomeric band (Col. 9, Lines 28-64); wherein the second (Figure 20, #186) and fourth (184) hollow cylinders are aligned with acoustic elements (200, 202) of a sonic logging tool; and an acoustically smooth outer sleeve covering the plurality of spaced mass blocks (164) and sonic receivers and comprising first and second zones (See Figure 9 outer sleeve. Arian fails to teach wherein the acoustic elements are receivers; and oil disposed in an annulus between the central mandrel and the outer sleeve, the oil

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comprising an acoustic impedance matched to borehole fluid, and the oil is pressurized to match a borehole environment; wherein each low acoustic impedance zone comprises an acoustic impedance substantially matching borehole fluid; and wherein the mandrel is hollow and defines a wiring conduit; wherein the first and third hollow metallic cylinders each comprise an acoustic impedance between twice and at least ten times as high as the second and fourth hollow cylinders; wherein first and second acoustic impedance zones covering the plurality of spaced receiver blocks and acoustic receivers; wherein the first and second cylinders and the metal and elastomeric band are separable for maintenance and repair. Hoyle teaches wherein acoustic elements are receivers (Figure 5C, #C10); wherein the mandrel is hollow and defines a wiring conduit (Figure 5C, #C3); oil disposed in an annulus (Figure 5D, #C9) between the central mandrel and the outer sleeve, wherein the oil is pressurized to match a borehole environment (Col. 9, Line 46 – Col. 10, Line 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Arian, with the apparatus of Hoyle to protect the tool from the extreme pressure normally experienced by such tools when disposed in oil well boreholes. Hoyle fails to teach the oil comprising an acoustic impedance matched to borehole fluid, and; wherein each low acoustic impedance zone comprises an acoustic impedance substantially matching borehole fluid; and wherein the first and third hollow metallic cylinders each comprise an acoustic impedance between twice and at least ten times as high as the second and fourth hollow cylinders, and the oil and low acoustic impedance zone comprising an acoustic impedance substantially matching borehole fluid. However, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to provide the first and third hollow metallic cylinders each with an acoustic impedance between twice and at least ten times as high as the second and fourth hollow cylinders, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working range involves only routine skill in the art. In re Aller, 105 USPQ 233. Hoyle fails to teach first and second acoustic impedance zones covering the plurality of spaced receiver blocks and acoustic receivers, However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to cover the spaced receiver blocks with the first and second impedance zones, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70. Hoyle fails to teach wherein the first and second cylinders and the metal and elastomeric band are separable for maintenance and repair. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the first and second cylinders and the metal and elastomeric band separable, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. Nerwin v. Erlichman, 168 USPQ 177, 179.

With respect to Claims 16 and 35, Arian teaches an outer sleeve with multiple modules (Figure 19), each module comprising a first hollow metallic cylinder (Figure 10, #86), a first supporting ring (134) coaxial with and attached to the first hollow metallic cylinder (86); a second supporting ring (132) coaxial with and spaced axially from the first support ring (134); and a second hollow cylinder (136) disposed between the first

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(134) and second (132) supporting rings. Arian fails to teach wherein the second hollow cylinder comprises elastomer, resin, or both elastomer and resin. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a second and forth hollow cylinder comprising elastomer, resin, or both elastomer and resin, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Conclusion

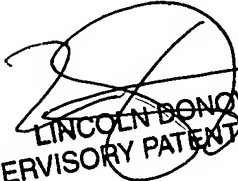
4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent arts of record relating to acoustic logging tool sleeves are disclosed in the PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremy Luks
Patent Examiner
Art Unit 2837


LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER